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United States
Environmental Protection
Agency

Office of Water
Regulations and Standards
Washington, DC 20460

September 1980

Water

EPA

Intermittent Streams

Water Quality Standards Criteria Summaries A Compilation of State/Federal Criteria

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INTERMITTENT STREAMS

Water Quality Standards
Criteria Summaries
A Compilation of State/Federal Criteria

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U. S. Environmental Protection Agency
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NATIONAL SUMMARY

OF

STATE WATER QUALITY STANDARDS

INTERMITTENT STREAMS

PROVISIONS/POLICIES

SEPTEMBER, 1980

PREPARED FOR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

CRITERIA AND STANDARDS DIVISION

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INTRODUCTION

This digest is compiled to provide general information to the public as well as to Federal, State, and local officials. It contains excerpts from the individual Federal-State water quality standards establishing pollutant specific criteria for interstate surface waters. The water quality standards program is implemented by the U. S. Environmental Protection Agency where responsibility for providing water quality recommendations, approving State-adopted standards for interstate waters, evaluating adherence to the standards, and overseeing enforcement of standards compliance, has been mandated by Congress.

Standards, a nationwide strategy for surface water quality management, contain three major elements: the use (recreation, drinking water, fish and wildlife propagation, industrial, or agricultural) to be made of the navigable water; criteria to protect these uses; and an antidegradation statement to protect existing high quality waters, from degradation by the addition of pollutants.

Water quality criteria (numerical or narrative specifications) for physical, chemical, temperature, and biological constituents are stated in the July 1976 U. S. Environmental Protection Agency publication Quality Criteria for Water (QCW), available from the Government Printing Office, Washington, D. C. The 1976 QCW, commonly referred to as the "Red Book," is the most current compilation of scientific information used by the Agency as a basis for assessing water quality. This publication is subject to periodic updating and revisions in light of new scientific and technical information.

Intermittent streams provisions and policies in State water quality standards are the subject of this digest. These provisions and policies are included into the standards when a State wishes to qualify the applicability of its water criteria to intermittently low flow streams. The Agency has recommended that water quality standards should protect specified uses of a waterway in critical low flow situations.* Additionally, for intermittent streams, the Agency recommends criteria be adopted to that extent necessary to assure that conditions in the streams or stream beds will not impair existing or designated uses in the stream or in downstream waters. The Quality Criteria for Water (1976) recommends pollutant criteria for the protection of aquatic life and other stream uses during the minimum stream flow, which in many cases is the average seven-day low flow which occurs once in ten years (i.e.7Q10).

Since water quality standards experience revisions and upgrading from time to time, following procedures set forth in the Clean Water Act, individual entries in this digest may be superseded. As these revisions are accomplished and allowing for the States to revise their standards accordingly, this digest will be updated and reissued. Because this publication is not intended for use other than as a general

* Guidelines for State and Areawide Water Quality Management Program Development; Chapter 5, Water Quality Standards.

information resource, to obtain the latest information and for special purposes and applications, the reader needs to refer to the current approved water quality standards. These can be obtained from the State water pollution control agencies or the EPA or Regional Offices.

Individual State-adopted criteria follow:

REFERENCES

A California Water Quality Standards by River Basins, c.a. 1975

For more detailed information on selected basins, sub-basins and stretches of streams and coastal areas refer to California State Water Quality Standards.

B Delaware Water Quality Standards, March 25, 1979

C Idaho Water Quality Standards, c.a. September, 1979

D Missouri Water Quality Standards, c.a. February, 1978

E American Samoa Water Quality Standards, Revised July, 1973

F Territory of Guam Water Quality Standards, Sept. 1975

G Trust Territory of the Pacific Islands Water Quality Standards, October 21, 1973

H Virgin Islands Water Quality Standards, Aug. 1973

ENVIRONMENT REPORTER, The Bureau of National Affairs, Inc. Washington, D. C. 20037

1 Pages 701:0501-0509, February 16, 1979

2 Pages 706:1004-1008, July 20, 1979

3 Pages 711:0542-0544, August 5, 1977

4 Pages 716:0603, March 26, 1976

5 Pages 726:1005, 1011-1013, March 7, 1980

Basic Water Quality Standards adopted May 22, 1979, have not yet been submitted to EPA for formal approval.

6 Pages 731:1002-1009, September 8, 1978

7 Pages 746:1008-1014, October 19, 1979

8 Pages 751:0504-0505, January 25, 1980

9 Pages 765:0512-0515, January 30, 1976

10 Page 761:0503-0504, 1973

11 Page 766:0504-0509, October 5, 1979

12 Pages 771:0502-0504, September 29, 1978

13 Pages 776:0504-0506, April 10, 1979

14 Pages 781:0501-0502, May 18, 1979

15 Pages 786:0501-0502, August 29, 1975

16 Page 791:0583, May 26, 1978

17 Pages 796:0103-0108, February 16, 1979

18 Pages 801:1001-1002, Sept. 29, 1978

19 Page 806:1003, March 30, 1979

20 Page 811:1043, 1974

21 Pages 816:0602-0607, 0642-0648, 1974

22 Pages 821:0502-0505, June 30, 1978

23 Pages 831:0501-0510, February 21, 1975

24 Page 836:0502, June 30, 1978

25 Pages 841:0507-0537, December 7, 1979

26 Pages 846:0501-0508, November 17, 1978

27 Pages 851:1001-1023, December 15, 1978

28 Pages 856:1001-1002, July 18, 1978

29 Pages 861:1002-1007, August 11, 1979

30 Pages 866:1004-1009, December 28, 1979

31 Pages 871:0501-0506, November 25, 1977

32 Pages 876:1001-1043, May 26, 1978

33 Pages 881:1001-1007, September 21, 1979

34 Pages 886:0513-0524, August 29, 1975

35 Pages 891:1001-1129, November 16, 1979

36 Pages 901:0501-0505, November 3, 1978

37 Pages 906:0501-0506, October 13, 1978

38 Pages 911:0501-0507, June 22, 1979

39 Pages 916:0541-0544, April 14, 1978

40 Pages 921:1001-1003, August 13, 1976

41 Pages 926:0541-0563, January 26, 1979

42 Pages 931:0501-0508, May 26, 1978

43 Pages 936:1001-1003, June 27, 1975

44 Pages 941:1001-1005, May 26, 1978

45 Pages 946:0501-0520, July 14, 1978

46 Pages 951:1002-1003, April 28, 1978

47 Pages 956:1001-1007, January 11, 1980

48 Page 741:1002, November 23, 1979

49 Pages 896:0301-0310, March 31, 1978

INTERMITTENT STREAMS

PROVISIONS/POLICIES

State	
Alabama[1]	Agricultural and Industrial Water Supply, Industrial Operations. This category includes watercourses in which natural flow is intermittent and non-existent during droughts and which may, of necessity, receive treated wastes from existing municipalities and industries, both now and in the future. In such instances, recognition must be given to the lack of opportunity for mixture of the treated wastes with the receiving stream for purposes of compliance.
Alaska[2]	Not Specified
Arizona[3]	When the entire flow in a watercourse that would otherwise be dry at that time and place is effluent from a wastewater treatment facility or agricultural irrigation return flow or combination thereof, the Council may, upon application, taking into consideration R9-21-206, R9-21-207, and R9-21-208, determine that all or part of such water quality standards do not apply where the Council finds that such entire flow does not present a substantial danger to the health of the public. When a watercourse that would otherwise be dry at the time and place is the subject of excavation or other activities in connection with retrieval of sand, gravel, or other materials, these water quality standards shall not apply to waters entering such excavations from occassional streamflows or to such waters discharged therefrom.
Arkansas[4]	Ephemeral Streams - Where there are streams with intermittent flow, the treatment of waste discharged thereto shall be no less than conventional secondary or equivalent. Stream Flows - These standards are based upon the assumption that existing flow conditions in streams shall continue without material change. The Water Quality Standards shall apply at all times except during periods when flows are less than the average minimum 7-day low flow which occurs once in ten years.
California[A]	Not Specified

Colorado[5]	Low Flow Exceptions - Water quality standards shall apply at all times except where surface waters are below minimum annual average seven-consecutive-day flow expected to occur once in ten (10) years. For certain substances, such as ammonia, the low flow exceptions may be based on the seasonal average seven-consecutive-day low flow expected to occur once in ten (10) years. Each season will normally consist of a minimum of three months.
Connecticut[6]	The minimum average daily flow for seven consecutive days that can be expected to occur once in ten years under natural conditions is the minimum flow to which the standards apply except when a stream is regulated to result in low flows below that level in which case the standards apply to the absolute low flow resulting from such regulation.
Delaware[B]	Not Specified
Florida[7]	Not Specified
Georgia[8]	Specific criteria or standards set for the various parameters apply to all flows on regulated streams. On unregulated streams, they shall apply to all streamflows equal to or exceedng to 7-day, 10-year minimum flow.
Hawaii[9]	Not Specified
Idaho[10]	Not Specified
Illinois[11]	Except as otherwise provided in this Chapter with respect to temperature, the water quality standards in this Part shall apply at all times except during periods when flows are less than the average minimum seven day low flow which occurs once in ten years.
Indiana[12]	All water quality standards in Section 6 of this Regulation, except those provided in subsection 6(a), will cease to be applicable when the stream flows are less than the average minimum seven-consecutive-day low flow which occurs once in ten years. This determination will be made using Low-Flow, Characteristics of Indiana Streams by Paul B. Rohne, Jr., 1972, United States Department of the Interior, Geological Survey, or any additional information compiled on a comparable basis.
Iowa[13]	Fish and aquatic life, wildlife, secondary recreation: Chemical constituents shall not be exceeded at any time the flow equals or exceeds the seven-day, ten-year flow unless the material is from uncontrollable nonpoint sources.

Iowa (con't)	Water quality standards shall be met at all times when the flow of the receiving stream equals or exceeds the average seven-day low flow which occurs once in ten years. Exceptions may be made for intermittent or low flow streams. Where intermittent streams are classified for Class B aquatic life protection the department may waive the seven day, ten year low flow requirement and establish a minimum flow in lieu thereof. Such waiver shall be granted only when it has determined that aquatic resources of the receiving waters are of no significance at flows less than the established minimum.
Kansas[14]	For class A waters, the applicable criteria listed below shall apply at all times. For class B streams, the applicable criteria listed below shall apply at all times except during periods when streamflows, including releases from reservoirs, are less than the average minimum seven-day low flow which occurs once in ten years, or when stream flow is less than 1 cfs, whichever value is greater. Quality criteria shall be met insofar as is practicable when streamflows are less than those stipulated. All watercourses which reach zero natural flow annually shall be exempted from water use classification and the application of the Specific Criteria, Section VII except the following water courses which shall be classified as Class B waters: 1) those waters specifically listed in the State Water Quality Standards; and 2) those waters where evidence specifically indicates that aquatic life will be supported because of pooling during periods of zero natural flow.
Kentucky[15]	Not Specified
Louisiana[16]	Not Specified
Maine[17]	Minimum Flow - Regulated Rivers and Streams: For regulated rivers and streams, the Department may establish a minimum flow necessary to maintain water quality standards. This flow will be based upon achieving the assigned classification, criteria and protection of the uses of the stream. The Department will cooperate with appropriate Federal, State and private interests in the development and maintenance of stream flow requirements.
Maryland[18]	(1) Discharges of effluent to intermittent streams is not permitted if feasible alternatives are available. (2) In instances where discharge to an intermittent stream is permitted by the Administration, the discharge shall comply with Effluent Limitations (Regulation 08.05.04.05) as well as Receiving Water Quality Standards (Regulation 08.05.04.03).

Massachusetts[19]

The Division will determine the most severe hydrologic condition at which water quality standards must be met. In classifying the inland waters of the Commonwealth and in applying these standards to such waters, the critical low flow condition at and above which these standards must be met is the average minimum consective seven day flow to be expected once in ten years, unless otherwise stated by the Division in these standards. In artificially regulated waters, the critical low flow will be established by the Division through agreement with the Federal, state or private interest controlling the flow. The minimum flow established in such agreement will become the critical low flow under this section for those waters covered by the agreement.

Protection of Low Flow Waters: Certain waters will be designated by the Division in Regulation 5.5 of these standards for protection under this section due to their inability to accept pollutant discharges. New or increased discharges of pollutants to waters so designated are prohibited unless a variance is granted by the Division as provided in Regulation 4.6

Michigan[20]

The accepted design streamflow to which the water quality standards as prescribed by these rules shall apply are those equal to or exceeding the ten-year recurrence of a minimum low flow average of seven-day duration, except where the commission determines that a more restrictive application is necessary to protect a particular designated use.

Minnesota[21]

Discharges of sewage, industrial waste or other waste effluents shall be controlled so that the water quality standards will be maintained at all stream flows which are equal to or exceeded by 90 percent of the seven consecutive daily average flows of record (the lowest weekly flow with a once in ten year recurrence interval) for the critical month(s). The period of record for determining the specific flow for the stated recurrence interval, where records are available, shall include at least the most recent ten years of record, including flow records obtained after establishment of flow regulation devices, if any. Such calculations shall not be applied to lakes and their embayments which have noncomparable flow recurrence interval. Where stream flow records are not available, the flow may be estimated on the basis of available information on the watershed characteristics, precipitation, run-off and other relevant data.

Allowance shall not be made in the design of treatment works for low stream flow augmentation unless such flow augmentation of minimum flow is dependable and controlled under applicable laws or regulations.

Mississippi[22]

All criteria contained herein shall apply to all stages of streamflow greater than or equal to the 7-day, 10-year minimum flow in unregulated, natural streams, and the legally guaranteed minimum flow in regulated streams. This requirement shall not be interpreted to permit any unusual waste discharges during periods of lower flow.

Missouri[D]

(A) The general criteria shall apply to all waters of the state at all times.

(B) The specific criteria for each use shall apply to all waters, however, the Commission will consider exceptions in the following cases:

1. Exception will be considered for streams when the flow is equal to or below the 7-day, once-in-ten-years low flow.

2. Exceptions will be considered in regulated-flow streams if the flow falls below the minimum release flow agreed upon by the regulating agencies.

3. Excpetions will be considered when the effluent flow constitutes a majority of the stream flow.

4. Exceptions will be considered when the stream or lake is subjected to non-point source pollutants due to stormwater runoff. The water quality management process shall minimize the adverse effects of stormwater runoff. Exceptions during stormwater runoff shall not be construed as license to relax point-source controls.

5. Exceptions are granted for the unavoidable chemical and physical changes that occur in the hypolimnion of lakes. Release waters from dams shall meet specific criteria to protect downstream uses.

Streams that may cease flow in dry periods, but maintain permanent pools which support aquatic life are identified.

Montana[23]

Until such time as minimum stream flows are established for dewatered streams, the minimum treatment requirements for discharges to dewatered receiving streams are to be no less than the minimum treatment requirements prescribed.

Treatment requirements for discharges to intermittent streams are to be no less than the minimum treatment requirements prescribed.

Nebraska[24]

"The Water Quality Standards, except general criteria (Rule 2.(2), will not apply to: ...

Nebraska (con't)	(b) Waters during periods when the flow is less than 0.1 cfs, or when the flow is less than the 7-day-10-year low flow. (c) Effluent dominated streams during periods when the daily flow is totally composed of effluent, excluding minor amounts of bank seepage."
Nevada[25]	The specified standards will not be considered violated when the natural conditions of the receiving water are outside the established limits, including periods of extreme high or low flow. Where effluents are discharged to such waters, the discharges shall not be considered a contributor to substandard conditions provided maximum treatment in compliance with permit requirements is maintained.
New Hampshire[26]	The water quality standards shall apply at all times except during periods when receiving stream flows are less than the minimum average ten-day flow which occurs once in twenty years.
New Jersey[27]	The levels of quality specified for various water uses, where applicable, are expected to be maintained under conditions comprising minimum consecutive seven-day fresh water flows with ten-year recurrence intervals.
New Mexico[28]	The Water Quality Standards apply at all flows unless specified otherwise.
New York[29]	Water Quality Standards apply at all times.
North Carolina[30]	The governing flow criterion for the water quality standards excluding dissolved oxygen and toxics shall be the minimum average flow for a period of seven consecutive days that has an average recurrence of once in ten years (the seven day ten year low flow). The seven day ten year low flow shall also be the governing flow for the dissolved oxygen water quality standards during the summer discharge period defined in 15 NCAC 2B.0404. The governing flow for toxic water quality standards shall be the minimum average flow for a period of 30 consecutive days that has an average recurrence of once in two years. In cases where the stream flow is regulated, the governing flow for all water quality standards shall be the instantaneous minimum flow or if deemed appropriate by the commission, the minimum daily average flow. These governing criteria are established specifically for setting effluent limitations and for the design of wastewater treatment facilities. In addition, the governing flow also established a value below which deviations from water quality standards can be anticipated.

North Dakota[31]

In the case of periods where the flow in the stream is less than the 10-year, 7-day low flow level, the Department reserves the right to make a case-by-case evaluation of application of these standards. However, no substances shall be present in concentrations or combinations that materially interfere with, or that prove hazardous to, the intended water usage.

Ohio[32]

Seasonal Warmwater Habitat: These are the waters capable of supporting the propagation and habitation of aquatic organisms on a seasonal basis. These waters have a minimum annual 7 day average flow that has a recurrence period of once in ten years (not attributable to discharges and other hydraulic alterations) of 1 cubic foot per second or less and having more than 50 per cent of the total flow under such conditions composed of wastewater effluents. Mixing zone standards, Rule 3745-1-06 of the Ohio Administrative Code will not apply.

Limited Warmwater Habitat: These are waters incapable of meeting criteria necessary for the support of populations of fish and associated vertebrate and invertebrate organisms and plants either on a seasonal or year around basis. This degraded condition may be due to relative low stream flow coupled with heavily populated and/or industrialized areas that have outdated sewer systems and/or waste treatment facilities. However, exceptions from Warmwater Habitat criteria will apply only to specific criterion during specified time periods and/or flow conditions. This will be determined on a case-by-case basis and comply with all Federal and State water quality statutes. This designation must be justified by significant economic or technological rationale and is to be used only as a temporary classification with upgrading of use designation at the earliest possible time prior to July 1, 1983, where attainable.

Standards for the support of this use designation will be the same as the standards for the support of the use designation Warmwater Habitat. However, individual criterion will be varied on a case-by-case basis and will supersede the standards for other use designations where applicable. The ammonia-N limit will correspond to the concentrations in Table 2, where applicable, but the most stringest concentration to be met at any time will be the value set in Section 3745-1-08(C)(1) of the Ohio Administrative Code.

Oklahoma[33]

The numerical and descriptive (i.e. bioassay related) limits shall be maintained at all times and apply to all perennial streams of the State with the exception of when the flow is less than the seven-day, two-year low flow value. For intermittent streams, the numerical and descriptive limits

Oklahoma (con't)	shall be maintained except when the flow is less than 1.0 cfs. All other general standards shall be maintained at all times and apply to all perennial and intermittent streams of the State except when conditions are attributable to natural phenomena.
Oregon[34]	Not Specified
Pennsylvania[35]	The accepted design stream flow, to which the water quality criteria as set forth in this chapter shall apply, is the actual or estimated lowest seven-consecutive-day average flow that occurs once in ten years for a stream with unregulated flow, or the estimated minimum flow for a stream with regulated flows, except where the Department determines that a more restrictive application is necessary to protect a particular designated or existing use. Where the lowest seven-consecutive-day average flow that occurs once in ten years is zero, the Department shall specify the design flow based on the identified or estimated flow at that point where a use identified in section 93.4 of this title (relating to statewide water uses) becomes possible.
Rhode Island[36]	The minimum average daily flow for seven consecutive days that can be expected to occur once in ten years shall be the minimum flow to which the standards apply. Water Quality Testing - For the purposes of these regulations, water quality criteria will be determined under the most adverse conditions. For water quality parameters most adverse conditions shall mean minimum dilution predictable and complete disruption in operation of any Waterwater Treatment Facility. Minimum dilution of flow shall be the minimum average daily flow for seven consecutive days that can be expected to occur once in ten years. For other water quality parameters, most adverse conditions shall be defined by the director according to sound engineering and scientific practices. Bacteriological surveys of sea water should include sampling during periods when the most unfavorable hydrographic and pollution conditions prevail.
South Carolina[37]	Specific water quality standards are not applicable where natural flow conditions are lower than those which occur at the minimum seven-day average flow that occurs with a frequency of once in ten years.
South Dakota[38]	Flow rates for high quality waters: When flow in streams classified for the beneficial use of cold water permanent fish life propagation, cold water marginal fish life propagation, or warm water permanent fish life propagation falls below the minimum seven day average flow that can be

South Dakota (con't)	expected to occur once in every twenty-five years, water quality criteria shall not apply to the water but any applicable effluent regulations shall remain in force. Flow rates for low quality fishery waters: When the flow in streams classified for the beneficial use of warm water semipermanent fish life propagation or warm water marginal fish life propagation falls below the minimum seven day average flow that can be expected to occur once in every five years but not less than 1.0 c.f.s., water quality criteria shall not apply to the water but any applicable effluent regulations shall remain in force.
Tennessee[39]	The criteria set forth shall be applied on the basis of the following stream flows: Unregulated streams — stream flows equal to or greater than the 3-day minimum, 20 year recurrence interval; Regulated streams — all flows in excess of the minimum critical flow occurring once in 20 years as determined by an analysis of records of operation and approved by the Commissioner of the Tennessee Department of Public Health.
Texas[40]	The dissolved oxygen concentrations represent minimum values and shall apply at all times that the daily flow exceeds the base flow condition. The base flow condition is defined as either the 7-day minimum average flow for the existing hydrologic conditions with a recurrence interval of two years or 0.1 cfs, whichever is higher. Temperature: Same as dissolved oxygen. Other Parameters and General Criteria: The general criteria and the numerical criteria not specifically discussed above shall apply at all times regardless of flow unless specifically excepted.
Utah[41]	Failure of a stream to meet water quality standards when stream flow is either unusually high or less than the 7-day, 10-year minimum flow shall not be cause for action against persons discharging wastes which meet both the requirements of PART I of these regulations and the requirements of applicable permits.
Vermont[42]	Water quality classification standards and associated requirements shall apply in all instances except during periods when the low natural stream flow is less than the consecutive seven (7) day mean low flow with a ten (10) year return period. On those rivers and streams whose rate of flow is artificially regulated, the flow shall not be reduced to a point where these standards and requirements

Vermont (con't)	governing water quality cannot be met nor shall such flow be regulated in such a way as to produce erosion or sedimentation with resulting discoloration or turbidity in excess of the limits provided in these regulations. The Secretary shall cooperate with appropriate federal, state, municipal and private interests in the development and maintenance of streamflow requirements. This rule shall in no way be construed to permit less than the normal design operation of any wastewater treatment facility during periods of low stream flow or to otherwise waive any discharge prohibitions or restrictions.
Virginia[43]	Not Specified
Washington[44]	Not applicable.
West Virginia[45]	Stream quality standards are to apply at all times when flows are equal to or greater than the minimum mean 7-consecutive-day drought flow with a 10-year return frequency.
Wisconsin[46]	The Standards shall apply at all times except (a) during periods when flows are less than the average minimum 7-day low flow which occurs once in 10 years (7-day Q10), and (b) in channels which convey a treated effluent to natural surface waters. In determining the 7-day Q10 flow, consideration will be given to streams subject to hydraulically altered flow regimes.
Wyoming[47]	Where stream flow data are availabe, these standards shall apply at all times except during periods when flows are less than the average of the minimum seven consecutive day flow which has the probability of occurring once in ten years. During periods when stream flows are less than the minimums described above the Wyoming Game and Fish Department and the Department may require the discharger to institute operational modifications as necessary to insure the protection of aquatic life. Where stream flow data are not available, the Department must take into consideration the possible existence of markedly abnormal flows when determining violations of these standards.
American Samoa[E]	Not Specified
District of Columbia[48]	The criteria assigned to a stream applies to all flows equal to or exceeding the 7-day, 10-year minimum flow except where, and to the extent that, natural conditions prevent their attainment.

Guam[F]	Not Specified
Puerto Rico[49]	Water quality standards shall apply at all times, except for surface waters during periods when their flows are less than the average minimum seven-day low flow which occurs once in ten years.
Trust Territories[G]	Not Specified
Virgin Islands[H]	Not Specified

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